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| 09/801,339 | 03/07/2001 | Tong Chen | 010025 | 4773 |

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EXAMINER

TRAN, LONG K

ART UNIT PAPER NUMBER

2818

DATE MAILED: 12/12/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/801,339

Applicant(s)

CHEN ET AL.

Examiner

Long K. Tran

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 2 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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DETAILED ACTION

Response to Amendment

1. Claims **1, 14** and **15** have been amended in paper no. **10**.
2. Applicant's arguments with respect to claims **1 - 22** have been considered but are moot in view of the new ground(s) of rejection.

Claims 1 - 14

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negative by the manner in which the invention was made.

4. Claims **1, 2,3, 5, 7,8,10,11** and **14** are rejected under 35 U.S.C. 103(a) as being unpatentable over Choi (U.S. Patent 5,753,857) in view of Huang (US Patent 6,353,257).

Regarding claims **1, 2** and **14**, Choi discloses a device comprising: a base 18 (fig.2); a device 17 (fig. 2) connected to the base; and a cover including a plastic body 10 (fig. 2), wherein the body is connected to the base such that the device is enclosed by the cover such that an inner surface of the body of the cover and an upper surface of the device define an air gap therebetween (fig. 2), and wherein the electrically conductive lead 13 (fig. 2) includes an exposed portion 12 (fig. 2) electrically connected to the

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device. Choi does not teach the body 10 having a portion (e.g. glass lid 16) is made of plastic.

Huang discloses lid 6 (fig. 4) can be made of glass or plastic to hermetically cover the top opening of the body cover (col. 3, lines 40 – 48).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to replace the glass lid by a plastic lid as taught by Huang to simplify the process of making the lid, since such a modification has been held to be within the general skill of a worker in the art.

Regarding claim 3, Choi discloses the inner surface of the body 10 (fig. 2) of the cover includes a sidewall connected to the base (fig. 2).

Regarding claims 5 and 7, Choi discloses the ceramic base 2 (fig. 1) or plastic base 18 (fig. 2).

Regarding claim 8, Choi discloses the apparatus comprising an electrically conductive bump 17b (fig. 2) between the exposed portion 13a (fig. 2) of the lead and the device.

Regarding claims 10 and 11, Choi discloses the device includes a semiconductor chip 4 (fig. 1) and 17 (fig. 2).

5. Claims 4,6, 9,12 and 13, are rejected under 35 U.S.C. 103(a) as being unpatentable over Choi (U.S. Patent No. 5,753,857) in view of Huang (US Patent 6,353,257) and further in view of Tanaka et al. (U.S. Patent No. 5,097,318).

Regarding claim **4**, Choi discloses the claimed invention except for the base includes an electrically conductive base-plate on which the device is mounted.

Tanaka et al. disclose base substrate 6 includes wiring layer 10 (fig. 1) connecting the connection electrodes for the wire bondings at their terminals.

At the time the invention was made, It would have been an obvious to one having ordinary skill in the art to design the base includes an electrically conductive base-plate on which the device is mounted. Applicant has not disclosed that the base includes an electrically conductive base-plate on which the device is mounted provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with either base substrate 6 includes wiring layer or the base includes an electrically conductive base-plate on which the device is mounted because both bases provide an electrical connection. Therefore, it would have been obvious to ordinary skill in this art to use base substrate 6 includes wiring layer to obtain the invention as specified in claim **4**.

Regarding claim **6**, Choi discloses the claimed invention except for at least one electrically conductive via extending from a first surface of the substrate to a second surface of the substrate; and at least one electrically conductive ball connected to the electrically conductive via.

Tanaka et al. disclose solder bump (fig. 8, 11) connected to the conductor through-holes (fig. 8, 4) in order to change the wiring pattern design without changing the insulating base substrate and the insulating cover substrate.

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At the time the invention was made, It would have been an obvious to one having ordinary skill in the art to include at least one electrically conductive via extending from a first surface of the substrate to a second surface of the substrate and at least one electrically conductive ball connected to the electrically conductive via. Applicant has not disclosed that at least one electrically conductive via extending from a first surface of the substrate to a second surface of the substrate and at least one electrically conductive ball connected to the electrically conductive via provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with either electrically conductive via or the out-leads 12 (fig. 2) or solder bump connected to the conductor through-holes because both methods provide an electrical connection between the device and the exposed portion of the leads to the other side of the base. Therefore, it would have been obvious to ordinary skill in this art to use conductor through-holes to obtain the invention as specified in claim 6.

Regarding claim 9, Choi and Tanaka et al. disclose the claimed invention except for the body of the cover includes liquid crystal polymer.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the body of the cover including liquid crystal polymer, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice.

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Regarding claims **12** and **13**, Choi and Tanaka et al. disclose the claimed invention except for the device is selected from the group consisting of a MMIC; and the group consisting of a MEMS device, an optoelectronic device, a crystal device, an acoustic wave device, and a capacitor.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to design a device selected from the group consisting of a MMIC; and the group consisting of a MEMS device, an optoelectronic device, a crystal device, an acoustic wave device, and a capacitor, since it has been held that constructing a formerly integral structure in various elements involves only routine skill in the art.

Claims 15 – 22

6. Claims **15-22**, are rejected under 35 U.S.C. 103(a) as being unpatentable over Choi (U.S. Patent No. 5,753,857) in view of Huang (US Patent 6,353,257) and further in view of Tanaka et al. (U.S. Patent No. 5,097,318).

Regarding claim **15**, Choi discloses a device comprising: a base 18 (fig.2); a device 17 (fig. 2) connected to the base; and a cover including a plastic body 10 (fig. 2), wherein the body is connected to the base such that the device is enclosed by the cover such that an inner surface of the body of the cover and an upper surface of the device define an air gap therebetween (fig. 2), and wherein the electrically conductive lead 13 (fig. 2) includes an exposed portion 12 (fig. 2) electrically connected to the device. Choi does not explicitly teach the body 10 having a portion (e.g. glass lid 16) is made of plastic and the base 18 includes an electrically conductive base-plate on which the device is mounted.

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Huang discloses lid 6 (fig. 4) can be made of glass or plastic to hermetically cover the top opening of the body cover (col. 3, lines 40 – 48).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to replace the glass lid by a plastic lid as taught by Huang to simplify the process of making the lid, since such a modification has been held to be within the general skill of a worker in the art.

Tanaka et al. disclose base substrate 6 includes wiring layer 10 (fig. 1) connecting the connection electrodes for the wire bondings at their terminals. At the time the invention was made, It would have been an obvious to one having ordinary skill in the art to design the base includes an electrically conductive base-plate on which the device is mounted. Applicant has not disclosed that the base includes an electrically conductive base-plate on which the device is mounted provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with either base substrate 6 includes wiring layer or the base includes an electrically conductive base-plate on which the device is mounted because both bases provide an electrical connection. Therefore, it would have been obvious to ordinary skill in this art to use base substrate 6 includes wiring layer to obtain the invention as specified in claim **15**.

Regarding claims **16, 17**, Choi discloses the device includes a semiconductor chip 4 (fig. 1) and 17 (fig. 2).

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Regarding claim **18**, Choi, Huang and Tanaka et al. disclose the claimed invention except for the device is selected from the group consisting of a MMIC; and the group consisting of a MEMS device, an optoelectronic device, a crystal device, an acoustic wave device, and a capacitor.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to design a device selected from the group consisting of a MMIC; and the group consisting of a MEMS device, an optoelectronic device, a crystal device, an acoustic wave device, and a capacitor, since it has been held that constructing a formerly integral structure in various elements involves only routine skill in the art.

Regarding claims **19** and **20**, Choi, Huang and Tanaka et al. disclose the claimed invention except for the device includes a GaAs substrate; and the base-plate includes a metal selected from the group consisting of CuW and Cu/Mo/Cu; and the body of the cover includes liquid crystal polymer.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to the device includes a GaAs substrate; and the base-plate includes a metal selected from the group consisting of CuW and Cu/Mo/Cu; and the body of the cover includes liquid crystal polymer, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice.

Regarding claim **21**, Choi discloses an inner surface of the body of the cover 10 (fig. 2) and an upper surface of the device 17 (fig. 2) define an air gap

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Regarding claim **22**, Choi discloses the inner surface of the body 10 (fig. 2) of the cover includes a sidewall connected to the base (fig. 2).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP 706.07(a). Applicants are reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for response to this final action is set to expire **THREE MONTHS** from the date of this action. In the event a first response is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event will the statutory period for response expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Long K. Tran whose telephone number is 703-305-5482. The examiner can normally be reached on Mon-Thu.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on 703-308-4910. The fax phone numbers for the organization where this application or proceeding is assigned are 703-746-7466 for regular communications and 703-872-9319 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-306-3329.

Long Tran



December 6, 2002



David Nelms
Supervisory Patent Examiner
Technology Center 2800